

WHAT IS CLAIMED IS:

1. A cleaning device for cleaning a nozzle surface of an ink-jet head, comprising:
 - 5 a first wiping member for wiping said nozzle surface;
a cleaner lever for supporting said first wiping member;
a lever driving mechanism moving said first wiping member between a retracted position located away from said nozzle surface and a wiping position for wiping said nozzle surface;
 - 10 and
a flat plate form second wiping member formed of an elastic body arranged within a moving path of said first wiping member so as to contact with said first wiping member.
- 15 2. A cleaning device as set forth in claim 1, wherein said first wiping member is designed to move between said retracted position and said wiping position located above said retracted position, by moving a cleaner lever, and said second wiping member is arranged above said
20 retracted position and below said wiping position.
3. A cleaning device as set forth in claim 1, wherein said cleaner lever has a third wiping member which is able to contact with said second wiping member while said cleaner lever is
25 moving.
4. A cleaning device as set forth in claim 1, further

comprising:

a first supporting member supporting said second wiping member on the side of the retracted position of said first wiping member and,

- 5 a second supporting member supporting said second wiping member on the side of said wiping position of said first wiping member;

wherein a length of a portion of said second wiping member projecting from said first supporting member is shorter than
10 a length of a portion of said second wiping member projecting from said second supporting member.

5. A cleaning device as set forth in claim 1, wherein a tip end surface of said first wiping member comes in contact with
15 a side surface of said second wiping member.

6. A cleaning device as set forth in claim 1, wherein said lever driving mechanism includes:

- a rotary driving source;
20 a gear train to be driven by said rotary driving source;
a friction type clutch lever which is frictionally engaged with one of gears constituting said gear train by means of a predetermined biasing force and is arranged coaxially with said gear;

- 25 a first cam mechanism for converting rotation of said clutch lever into movement of said cleaner lever; and
a tooth portion formed on said clutch lever which engages

with said gear train when said clutch lever is in a predetermined rotational angular range.

7. A cleaning device as set forth in claim 6, wherein said
5 tooth portion engages with said gear train when said first
wiping member is being moved in a condition contacting with
said second wiping member.

8. A cleaning device as set forth in claim 6, wherein said
10 first cam mechanism includes a first cam follower formed in
said cleaner lever, a first cam surface contacting with said
first cam follower while said cleaner lever moves to said wiping
position, and a second cam surface contacting with said first
cam follower while said cleaner lever moves to said retracted
15 position, and wherein said first and second cam surfaces are
arranged at a predetermined angle with respect to each other.

9. A cleaning device as set forth in claim 6, further
comprising a lock lever for locking said ink-jet head at a
20 predetermined position, wherein

said lever driving mechanism includes a second cam
mechanism for converting a rotational force of said rotary
driving source into a driving force for moving said lock lever
between a locking position for fixing said ink-jet head and
25 an unlocking position away from said ink-jet head.

10. A cleaning device as set forth in claim 9, wherein said

first cam mechanism includes a first cam follower formed in said cleaner lever, said first cam follower following a first cam region for reciprocally moving said cleaner lever between said wiping position and said retracted position according to rotation of said clutch lever, and a second cam region for
5 holding said cleaner lever at said retracted position even when said clutch lever is rotated, and

said second cam mechanism includes a second cam follower formed in said lock lever, said second cam follower following
10 a third cam region for reciprocally moving said lock lever between said locking position and said unlocking position according to rotation of said clutch lever, and a fourth cam region for holding said lock lever at said unlocking position even when said clutch lever is rotated.

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11. A cleaning device as set forth in claim 10, wherein while said first cam follower is operated in said first cam region, said second cam follower is in said fourth cam region, and when said first cam follower is moved into said second cam region,
20 said second cam follower is shifted into operation in said third cam region.

12. A cleaning device as set forth in claim 10, wherein said second cam region is defined by an arc shaped cam groove centered
25 at a rotational center of said clutch lever, and

said fourth cam region is defined by an arc shaped groove centered at rotational center of said clutch lever.

13. A cleaning device as set forth in claim 9, further comprising an ink pump device for sucking ink from ink nozzles of said ink-jet head; wherein

5 said rotary driving source is a motor for driving said ink pump device.

14. A cleaning device for cleaning a nozzle surface of an ink-jet head, comprising:

10 a first wiping member for wiping said nozzle surface;
 a cleaner lever for supporting said first wiping member;
 and

 a lever driving mechanism moving said first wiping member between a retracted position located away from said nozzle
15 surface and a wiping position for wiping said nozzle surface;
 wherein said lever driving mechanism includes:

 a rotary driving source;
 a gear train to be driven by said rotary driving source;
 a friction type clutch lever which is frictionally
20 engaged with one of gears constituting said gear train by means of a predetermined biasing force and is arranged coaxially with said gear;

 cam mechanism converting rotation of said clutch lever into movement of said cleaner lever; and

25 a tooth portion formed on said clutch lever which engages with said gear train when said clutch lever is in a predetermined rotational angular range.

15. A cleaning device as set forth in claim 14, wherein said cam mechanism includes a first cam follower formed in said cleaner lever, a first cam surface contacting with said first
5 cam follower while said cleaner lever moves to said wiping position, and a second cam surface contacting with said first cam follower while said cleaner lever moves to said retracted position, and wherein said first and second cam surfaces are arranged at a predetermined angle with respect to each other.

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16. A cleaning device as set forth in claim 14, wherein said cam mechanism includes a cam follower formed in said cleaner lever, said cam follower following a first cam region for reciprocally moving said cleaner lever between said wiping
15 position and said retracted position according to rotation of said clutch lever, and a second cam region for holding said cleaner lever at said retracted position even when said clutch lever is rotated.

20 17. A cleaning device as set forth in claim 16, wherein said second cam region is defined by an arc shaped cam groove centered at a rotational center of said clutch lever.

18. A cleaning device for cleaning a nozzle surface of an
25 ink-jet head, comprising:

a lock lever for locking said ink-jet head at a predetermined position; and,

a lever driving mechanism for moving said lock lever between a locking position for fixing said ink-jet head and an unlocking position away from said ink-jet head, wherein said lever driving mechanism includes:

- 5 a rotary driving source;
- a gear train to be driven by said rotary driving source;
- a friction type clutch lever which is frictionally engaged with one of gears constituting said gear train by means of a predetermined biasing force and is arranged coaxially with
- 10 said gear;
- cam mechanism for converting rotation of said clutch lever into movement of said lock lever; and
- a tooth portion formed on said clutch lever which engages with said gear train when said clutch lever is in a predetermined
- 15 rotational angular range.

19. A cleaning device as set forth in claim 18, wherein
- said cam mechanism includes a cam follower formed in said lock lever, said cam follower following a third cam region for
- 20 reciprocally moving said lock lever between said locking position and said unlocking position according to rotation of said clutch lever and a fourth cam region for holding said lock lever at said unlocking position even when said clutch lever is rotated.

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20. A cleaning device as set forth in claim 19, wherein
- said fourth cam region is defined by an arc shaped groove

centered at rotational center of said clutch lever.

21. A cleaning device for cleaning a nozzle surface of an ink-jet head, comprising:

- 5 a first wiping member for wiping said nozzle surface;
 a cleaner lever for supporting said first wiping member;
 a lock lever for locking said ink-jet head at a predetermined position; and

 a lever driving mechanism which moves said first wiping
10 member between a retracted position located away from said nozzle surface and a wiping position for wiping said nozzle surface, and moves said lock lever between a locking position for fixing said ink-jet head and an unlocking position away from said ink-jet head, wherein

- 15 said lever driving mechanism includes:
 a rotary driving source;
 a gear train to be driven by said rotary driving source;
 a friction type clutch lever which is frictionally engaged with one of gears constituting said gear train by means
20 of a predetermined biasing force and is arranged coaxially with said gear;

 a first cam mechanism for converting rotation of said clutch lever into movement of said cleaner lever; and

- a second cam mechanism for converting rotation of said
25 clutch lever into movement of said lock lever.

22. A cleaning device as set forth in claim 21, wherein said

first cam mechanism includes a first cam follower formed in said cleaner lever, said first cam follower following a first cam region for reciprocally moving said cleaner lever between said wiping position and said retracted position according to rotation of said clutch lever, and a second cam region for holding said cleaner lever at said retracted position even when said clutch lever is rotated, and

said second cam mechanism includes a second cam follower formed in said lock lever, said second cam follower following a third cam region for reciprocally moving said lock lever between said locking position and said unlocking position according to rotation of said clutch lever and a fourth cam region for holding said lock lever at said unlocking position even when said clutch lever is rotated.

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23. A cleaning device as set forth in claim 22, wherein while said first cam follower is operated in said first cam region, said second cam follower is in said fourth cam region, and when said first cam follower is moved into said second cam region, said second cam follower is shifted into operation in said third cam region.

24. An ink-jet printer comprising:
an ink-jet head;

25 a cleaning device which is arranged offsetting from a printing region of said ink-jet head and is defined in any one of claims 1 to 23; and

a carriage carrying said ink-jet head for reciprocally moving along a moving path through said printing region and a position opposing to said cleaning device.